Original Research

Prevalence of Stress, Anxiety, Depression and Quality of Life in Moderate to Severe COVID 19 Patients in West Bengal: An Observational Study

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Abstract

Background: In addition to the physical symptoms COVID19 can have serious effects on people's mental health like Stress, Anxiety, Depression, Insomnia, irritability that ultimately leads to poor quality of life. Though several studies have been reported the psychological consequences of COVID-19 but still there is lack of general statistics on this topic globally as it is a new strain COVID and a new pandemic situation.

Method: COVID 19 infected patients who were admitted in the COVID ward were randomly selected. Patients are obtained from admitted patient list which was available in control room. Early Warning Sign Score (EWS score) are obtained from their record sheet. EWS score having ≥ 5 and having no previous psychiatric illness were selected as study sample.

Sample Sizes were tentatively 100. Study was conducted at post COVID follow up clinic of Department of Medicine of College of Medicine and Sagore Dutta Hospital .Written consent was taken for the study at 2 weeks follow up after discharge and at 6 weeks of follow up Perceived Stress Scale (PSS) for stress was applied. Data analyzed by appropriate statistical method.

Results: 78% patients were suffering from moderate (N=78) and 22% from severe (N=22) COVID 19 infection. 57.0 % patients (N=57) were women and 43.0% (N=43) were men. The mean age of the patients was more in severe (50.6±12.8) compared to moderate (42.6±12.5) COVID-19 infection. Mean Stress was more in severe (20.18±3.36) compared moderate infection (19.0±3.2) (p=0.1397).

Conclusion: Out of 100 COVID-19 patients majority were women and suffered from moderate COVID infection. Higher the age more the infection was found. Stress was more associated with the severe infection, low educated, lower socioeconomic status.

Keywords: COVID-19, Stress, Anxiety, Respiratory Distress

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Introduction

During the swine flu (H1N1) epidemic, anxiety reached the highest point at the peak of the epidemic and decreased with its decline[1]. Due to the pathogenicity of the virus, rapid rate of spread resulting in high mortality rate. COVID-19 may affect the mental health of individuals at several layers of society, ranging from the infected patients, and health care workers, to families, children, students, patients with mental illness, and even workers in other sectors[2,3,4].

COVID-19 is a new strain of coronaviruses, it is known to cause diseases ranging from mild to more severe illnesses such as fever, chills, cough, sore throat, myalgia, nausea and vomiting and diarrhea. More Severe cases of the disease can lead to heart, and respiratory failure, acute respiratory syndrome, or even death[5]. In addition to the physical impacts, COVID-19 can have serious effects on people's mental health[6]. A wide range of psychological outcomes have been observed during the Virus outbreak, at individual, community, national, and international levels. At the individual level, people are more likely to experience fear of getting sick or dying, feeling helpless, and being stereotyped by others [7] .

Psychological disorders during the COVID-19 pandemic have been reported by several studies that the affected individuals show several symptoms of mental trauma, such as Anxiety, depression, stress, mood swings, irritability, insomnia, post-traumatic stress, and anger[8,9,10] .

The prevention effort in the form of social distancing, hand washing repeatedly, stay at home, online class etc. makes significant changes in human life, especially people who are accustomed to directly socializing by physically become distant for fear of spreading the virus through physical contact. This turned out to cause a stressful situation for few peoples.

Huang Y et al (2020)[11] found that china has been severely affected by Coronavirus Disease 2019(COVID-19) since December, 2019. They aimed to assess the mental health burden of Chinese public during the outbreak. The overall prevalence of GAD, depressive symptoms, and sleep quality of the public were 35.1%, 20.1%, and 18.2%, respectively.

Zhang J et al[12](2020) observed that the public health emergencies resulting from COVID-19 are negatively impacting the mental health of the population and increasing the incidence of psychological crises. The clinical characteristics of psychological distress have not been well established across the populations affected by the COVID-19 pandemic, although a general increased level of mental distress has been reported from both the general public and frontline medical personnel.

Materials and Methods

STUDY AREA: Post COVID follows up clinic, Department of Medicine, College of Medicine and Sagore Dutta Hospital, Kolkata-58, West Bengal.

STUDY POPULATION: Persons, admitted in COVID ward and who confirmed to inclusion and exclusion criteria for the current study, was selected as a study population.

STUDY PERIODS: 1.5 years (includes data collection, data processing and preparation of the draft of Thesis).

STUDY DESIGN: Descriptive, observational, longitudinal type of Cross sectional study.

SAMPLE SIZE: According to EWS (Early Warning Signs) of admitted post COVID patients' total (tentatively) 100 patients were selected. Out of them 50 patients those EWS Score ≥ 5 and 50 patients those EWS score ≥ 7.

SAMPLE DESIGN: Those patients having EWS score 5 and above are categorized into two groups.

EWS (Early Warning Signs) Score

5-6 = moderately affected

≥7 = severely affected

Each group containing 50 patients

INCLUSION CRITERIA:

1) COVID 19 infected.

2) Admitted in COVID ward.

3) EWS Score ≥ 5 (at least once during entire admission period).

4) Patients are Conscious, oriented during interview.

5) Giving informed consent for current study.

6) Who agreed for follow up at post COVID follow up clinic

EXCLUSION CRITERIA:

1) EWS Score< 5 (As mildly affected patients were excluded)

2) Not giving consent.

3) Who have previously documented psychiatric illness.

STUDY TOOL:

1) SRQ (Self Rating Questionnaire)(Adopted Bengali version)[13]

2) Hamilton Anxiety Rating Scale (HAM-A)

3) Hamilton Depression Rating Scale (HAM-D)

4) Perceived Stress Scale (PSS)

5) WHO QOL-BREF(World Health Organization Quality of Life Brief Version)

6) EWS (Early Warning Signs) score chart.

7) Modified Kuppuswamy scale

STATISTICAL ANALYSIS PLAN:

The data was tabulated item-wise by using appropriate charts, bar diagrams, percentages and proportion was done using appropriate statistical tests. For statistical analysis data were entered into a Microsoft excel spreadsheet and then analysed by SPSS (version 27.0; SPSS Inc., Chicago, IL, USA) and Graph Pad Prism version 5.

ETHICAL CLEARANCE:

The research plan (synopsis) was approved by the Institutional Ethics Committee (IEC) of the College of Medicine and Sagore Dutta Hospital vide Memo No. CMSDH/IEC/215/01-2021 dated – 14/01/2021.

Result & Analysis

Table 1: Distribution of Age in group

Age in group	Frequency	Percent
≤30	14	14.0%
31-40	26	26.0%
41-50	35	35.0%
51-60	12	12.0%
>61	13	13.0%
Total	100	100.0%

In our study, 14 (14.0%) patients were ≤30 years of age, 26 (26.0%) patients were 31-40 years of age, 35 (19.0%) patient were 41-50 years of age, 12 (12.0%) patients were 51-60 years of age and 13 (12.0%) patients were >61 years of age.

Table 2: Distribution of Sex

Sex	Frequency	Percent
Female	57	57.0%
Male	43	43.0%
Total	100	100.0%

In our study, 57 (57.0%) patients were Female and 43 (43.0%) patients were Male in sex.

Table 3: Distribution of QOL(Quality of Life)

QOL	Frequency	Percent
Good	18	18.0%
Moderate	58	58.0%
Poor	15	15.0%
Very good	9	9.0%
Total	100	100.0%

In our study, 18 (18.0%) patients had good, 58 (58.0%) patients had Moderate, 15 (15.0%) patients had poor, and 9 (9.0%) patients had very good in QOL

Table 4: Distribution of COVID status (According To EWS Score)

COVID status	Frequency	Percent
Moderate	78	78.0%
Severe	22	22.0%
Total	100	100.0%

In our study, 78 (78.0%) patients had Moderate, 22 (22.0%) patients had severe COVID status.

Table-5: Distribution of mean Age

	Number	Mean	SD	Minimum	Maximum	Median
Age	100	44.4400	12.9633	19.0000	81.0000	45.0000

In above table showed that the mean Age (mean±s.d.) of patients was 44.4400±12.9633.

Table-6: Distribution of mean Stress

	Number	Mean	SD	Minimum	Maximum	Median
Stress	100	19.2600	3.3078	12.0000	26.0000	20.0000

In above table showed that the mean Stress (mean±s.d.) of patients was 19.2600±3.3078.

Table-7: Distribution of mean Anxiety

	Number	Mean	SD	Minimum	Maximum	Median
Anxiety	100	9.9900	11.4164	0.0000	35.0000	0.0000

In above table showed that the mean Anxiety (mean±s.d.) of patients was 9.9900±11.4164.

Table-8: Distribution of mean Depression

	Number	Mean	SD	Minimum	Maximum	Median
Depression	100	7.4500	4.7341	2.0000	20.0000	5.0000

In above table showed that the mean Depression (mean±s.d.) of patients was 7.4500±4.7341.

Table-9: Association between Age in group: COVID status

	COVID STATUS		
Age in group	**Moderate**	**Severe**	**Total**
≤30	14	0	14
Row %	100.0	0.0	100.0
Col %	17.9	0.0	14.0
31-40	20	6	26
Row %	76.9	23.1	100.0
Col %	25.6	27.3	26.0
41-50	26	9	35
Row %	74.3	25.7	100.0
Col %	33.3	40.9	35.0
51-60	10	2	12
Row %	83.3	16.7	100.0
Col %	12.8	9.1	12.0
>61	8	5	13
Row %	61.5	38.5	100.0
Col %	10.3	22.7	13.0
TOTAL	78	22	100
Row %	78.0	22.0	100.0
Col %	100.0	100.0	100.0

Chi-square value: 6.4995; **p-value:** 0.1648

In Moderate, 14 (17.9%) patients were ≤30 years of age, 20 (25.6%) patients were 31-40 years of age, 26 (33.3%) patient were 41-50 years of age, 10 (12.8%) patients were 51-60 years of age and 8 (10.3%) patients were >61 years of age.

In Severe, 6 (27.3%) patients were 31-40 years of age, 9 (40.9%) patients were 41-50 years of age, 2 (9.1%) patient were 51-60 years of age and 5 (22.7%) patients were >61 years of age.

Association of Age in group with COVID status was not statistically significant (p=0.1648).

Table-10: Association between Sex: COVID status

	COVID STATUS		
Sex	**Moderate**	**Severe**	**TOTAL**
Female	37	20	57
Row %	64.9	35.1	100.0
Col %	47.4	90.9	57.0
Male	41	2	43
Row %	95.3	4.7	100.0
Col %	52.6	9.1	43.0
TOTAL	78	22	100
Row %	78.0	22.0	100.0
Col %	100.0	100.0	100.0

Chi-square value: 13.2317; **p-value:** 0.0002

Odds Ratio: 0.0902 (0.0197, 0.4126)

In Moderate, 32 (47.4%) patients were Female and 41 (52.6%) patients were Male.

In Severe, 20 (90.9%) patient was Female and 2 (9.1%) patients were Male.

Association of Sex with COVID status was statistically significant (p=0.0002)

Table-11: Association between QOL: COVID status

	COVID STATUS		
QOL	**Moderate**	**Severe**	**TOTAL**
Good	15	3	18
Row %	83.3	16.7	100.0
Col %	19.2	13.6	18.0
Moderate	45	13	58
Row %	77.6	22.4	100.0
Col %	57.7	59.1	58.0
Poor	9	6	15
Row %	60.0	40.0	100.0
Col %	11.5	27.3	15.0
Very good	9	0	9
Row %	100.0	0.0	100.0
Col %	11.5	0.0	9.0
TOTAL	78	22	100
Row %	78.0	22.0	100.0
Col %	100.0	100.0	100.0

Chi-square value: 5.6748; **p-value:** 0.1286

In Moderate, 15 (19.2%) patients were good, 45 (57.5%) patients were Moderate, 9 (11.5%) patients were Poor, and 9 (11.5%) patients were Very Poor.

In Severe, 3 (13.6%) patients were good, 13 (59.1%) patients were Moderate, and 6 (27.3%) patients were Poor,

Association of QOL with COVID status was not statistically significant (p=**:** 0.1286)

Table-12: Distribution of mean Age: COVID status

		Number	**Mean**	**SD**	**Minimum**	**Maximum**	**Median**	**p-value**
Age	Moderate	78	42.6923	12.5225	19.0000	65.0000	45.0000	0.0104
	Severe	22	50.6364	12.8713	35.0000	81.0000	48.0000	

In Moderate, the mean Age (mean± s.d.) of patients was 42.6923± 12.5225.

In Severe, the mean Age (mean± s.d.) of patients was 50.6364± 12.8713.

Distribution of mean Age with COVID status was statistically significant (p=0.0104).

Table-13: Distribution of mean Stress: COVID status

		Number	**Mean**	**SD**	**Minimum**	**Maximum**	**Median**	**p-value**
Stress	Moderate	78	19.0000	3.2673	12.0000	25.0000	19.5000	0.1397
	Severe	22	20.1818	3.3614	16.0000	26.0000	20.0000	

In Moderate, the mean Stress (mean± s.d.) of patients was 19.0000±3.2673.

In Severe, the mean Stress (mean± s.d.) of patients was 20.1818±3.3614.

Distribution of mean Stress with COVID status was not statistically significant (p=0.1397)

Table-14: Distribution of mean Anxiety: COVID status

		Number	Mean	SD	Minimum	Maximum	Median	p-value
Anxiety	Moderate	78	8.0897	10.6712	0.0000	25.0000	0.0000	0.0014
	Severe	22	16.7273	11.6586	0.0000	35.0000	20.0000	

In Moderate, the mean Anxiety (mean± s.d.) of patients was 8.0897±10.6712.

In Severe, the mean Anxiety (mean± s.d.) of patients was 16.7273±11.6586.

Distribution of mean Anxiety with COVID status was statistically significant (p=0.0014).

Table-15: Distribution of mean Depression: COVID status

		Number	Mean	SD	Minimum	Maximum	Median	p-value
Depression	Moderate	78	5.5769	2.9521	2.0000	16.0000	5.0000	<0.0001
	Severe	22	14.0909	3.8036	7.0000	20.0000	16.0000	

In Moderate, the mean Depression (mean± s.d.) of patients was 5.5769±2.9521.

In Severe, the mean Depression (mean± s.d.) of patients was 14.0909±3.8036.

Distribution of mean Depression with COVID status was statistically significant (p<0.0001

Discussion

In our study, out of 100 patients, most of the patients were [35 (35.0%)] 41-50 years of age. Age was not statistically significant with COVID status. (p=0.1648). We found that, female population [57 (57.0%)] was higher than the male population [43(43.0%)] which was statistically significant (p=0.0002).

In our study, 78 (78.0%) patients had Moderate, 22 (22.0%) patients had severe COVID status.

Chen SL et al [14](2020) found that, moderate cases account for the largest proportion of all coronavirus disease 2019 (COVID-19) patients, Our study showed that, most of the patients were 12th Std [31 (39.7%)] in Moderate compared to Severe [6 (27.3%)] it was statistically significant (p<0.0001).

Huang Y et al [11](2020) found that the overall prevalence of GAD, depressive symptoms, and sleep quality of the public were 35.1%, 20.1%, and 18.2%, respectively. In our study, mean Stress was less [19.0000±3.2673] in Moderate compared to Severe [20.1818±3.3614]. In our Study 20% patients were suffered from high perceived stress, 50% patient's moderate stress, 30% patient's low stress. We found that, the mean Anxiety was lower [8.0897±10.6712] in Moderate compared to Severe [16.7273±11.6586], And the mean Depression was lower [5.5769±2.9521] in Moderate compared to Severe [14.0909±3.8036].

Zhang J et al [12](2020) observed that the public health emergencies resulting from COVID-19 are negatively impacting the mental health of the population and increasing the incidence of psychological crises. A general increased level of mental distress has been reported from both the general public and frontline medical personnel which corroborates with our study.

Conclusion

The mean Anxiety is lower in Moderate compared to Severe COVID-19 infection and the mean Depression is lower in Moderate compared to Severe COVID-19 infections. Also the mean Stress is less in Moderate compared to Severe COVID-19 infected patients. We concluded that association is found in stress, anxiety and depression and Quality of life on the post COVID-19 affected person.

In future research in this regard, whether stress and anxiety is one causative factor in severity of illness or it is a result of severe infection, that need to be determined.

Our study and most of the other studies shows negative psychological effects including post-traumatic stress symptoms, confusion, and anger. Stressors included longer quarantine duration, infection fears, frustration, boredom, inadequate supplies, inadequate information, financial loss and stigma in COVID 19 infections.

In future, more detailed study about the inter-relationship between the COVID infection and Stress, Anxiety and depression is needed. The effect of these comorbidities like, depression, stress, anxiety in the prognosis of COVID illness is also need to look after in further research.

LIMITATIONS OF THE STUDY

In spite of every sincere effort my study has lacunae.

The notable short comings of this study are:

1. The sample size was small. Only 100 cases are not sufficient for this kind of study.
2. The study has been done in a single centre.
3. The study was carried out in a tertiary care hospital, so hospital bias cannot be ruled out.

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Conflict of interest:Nil

Reference

1. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, Zhang L, Fan G, Xu J, Gu X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet (London, England). 2020;395(10223):497–506.
2. Coronavirus disease (COVID-19) Situation Report-128. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports. (Accessed 28 May 2020).
3. Wu J, Liu J, Zhao X, Liu C, Wang W, Wang D, Xu W, Zhang C, Yu J, Jiang B,et al. Clinical Characteristics of Imported Cases of COVID-19 in Jiangsu Province: A Multicenter Descriptive Study. Clin Infect Dis. 2020;29:ciaa199.
4. Zhou F, Yu T, Du R, Fan G, Liu Y, Liu Z, Xiang J, Wang Y, Song B, Gu X, et al. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. Lancet. 2020; 395(10229):1054-62.
5. Hui DS, I Azhar E, Madani TA, Ntoumi F, Kock R, Dar O. The continuing 2019-nCoV epidemic threat of novel coronaviruses to global health—the latest 2019 novel coronavirus outbreak in Wuhan, China. Int J Infect Dis. 2020;91:264–266. doi: 10.1016/j.ijid.2020.01.009. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
6. Zhou P, Yang XL, Wang XG, Hu B, Zhang L, Zhang W. A pneumonia outbreak associated with a new coronavirus of probable bat origin. Nature. 2020;579:270–273. doi: 10.1038/s41586-020-2012-7. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
7. Chen N, Zhou M, Dong X, Qu J, Gong F, Han Y. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. Lancet. 2020;395:507–513. doi: 10.1016/S0140-6736(20)30211-7. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
8. Ding Y, Wang H, Shen H, Li Z, Geng J, Han H. The clinical pathology of severe acute respiratory syndrome (SARS): a report from China. J Pathol. 2003;200:282–289. doi: 10.1002/path.1440. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
9. Ng DL, Al Hosani F, Keating MK, Gerber SI, Jones TL, Metcalfe MG. Clinicopathologic, immunohistochemical, and ultrastructural findings of a fatal case of Middle East respiratory syndrome coronavirus infection in the United Arab Emirates, April 2014. Am J Pathol. 2016;186:652–658. doi: 10.1016/j.ajpath.2015.10.024. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
10. Oreshkova N, Molenaar RJ, Vreman S, Harders F, Oude Munnink BB, Hakze-van der Honing RW, Gerhards N, Tolsma P, Bouwstra R, Sikkema RS, Tacken MG, de Rooij MM, Weesendorp E, Engelsma MY, Bruschke CJ, Smit LA, Koopmans M, van der Poel WH, Stegeman A. SARS-CoV-2 infection in farmed minks, the Netherlands, April and May 2020. Euro Surveill. 2020 Jun;25(23) [PMC free article] [PubMed]
11. Huang Y, Zhao N. Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 outbreak in China: a web-based cross-sectional survey. Psychiatry research. 2020 Jun 1;288:112954.
12. Zhang J, Lu H, Zeng H, Zhang S, Du Q, Jiang T, Du B. The differential psychological distress of populations affected by the COVID-19 pandemic. Brain, behavior, and immunity. 2020 Jul;87:49.
13. Chowdhury A N, Brahma A, Sanyal A; validation of Bengali version of The Self Rating Questionnaire,Indian journal of clinical Psychology;2003, volume. No. 30,no. 1& 2,56-61
14. Chen SL, Feng HY, Xu H, Huang SS, Sun JF, Zhou L, He JL, Song WL, Wang RJ, Li X, Fang M. Patterns of deterioration in moderate patients with COVID-19 from Jan 2020 to Mar 2020: a multi-center, retrospective cohort study in China. Frontiers in Medicine. 2020 Dec 3;7:567296.